#15 PB 7.2.03

RESPONSE UNDER 37 C.F.R. § 1.116
EXPEDITED PROCEDURE
GROUP 2871
PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Akira OHTANI, et al.

Docket No: Q60771

Appln. No.: 09/661,057

Group Art Unit: 2871

Confirmation No.: 7619

Examiner: Tarifur Rashid Chowdhury

Filed: September 13, 2000

For: LIQUID CRYSTAL CELL SUBSTRATE

RESPONSE UNDER 37 C.F.R. § 1.116

MAIL STOP AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is in response to the Office Action dated February 27, 2003. A Petition and payment for a one-month extension of time are attached, making this Response due on or before June 27, 2003.

Please consider the following remarks.

Claims 2, 3 and 5-8 are all the claims pending in the application.

In Paragraph No. 2 of the Office Action, Claims 3, 5 and 7 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hinata et al (U.S. Pat. No. 5,687,465) in view of Khan et al (WO 97/39380), JP '527 and Suzuki et al (U.S. Pat. No. 4,576,896), a newly cited reference.

Applicants respectfully traverse the rejection because the presently claimed invention is not *prima facie* obvious over Hinata et al in view of Khan et al, JP '527 and Suzuki et al.

Hinata et al discloses a liquid crystal display element comprising a flexible plastic substrate, wherein an end portion of the element is subjected to a gas barrier treatment. Hinata et al also discloses that a polarizing film is formed by adhering on upper and lower sides of the element.

Suzuki et al discloses an optical recording medium comprising a transparent substrate having a guide groove and made of a synthetic resin, and an information-recording layer formed on the surface thereof. Suzuki et al also discloses that the synthetic resin is an epoxy resin comprising a mixture of an aromatic epoxy resin and an alicyclic epoxy resin.

Suzuki et al further discloses that a refractive index and a glass transition point of a substrate can optionally be controlled by using such an epoxy resin.

Similar to Suzuki et al, JP '527 discloses an optical disk substrate comprising a mixture of an aromatic epoxy resin (e.g., bisphenol A, AD or F) and a solid epoxy resin (e.g., cresol novolak epoxy or phenol novolak epoxy).

JP '527 further discloses that heat resistance or moisture resistance of a substrate is improved by using such a mixture.

The presently claimed invention provides a liquid crystal cell substrate as recited in Claim 3. Such a constitution makes it possible to form a liquid crystal cell having small thickness, lightweight and excellent heat resistance, and also showing stable display quality.

A comparison between the present invention and the cited references is as follows:

	Liquid	Solid
Present Invention	Alicyclic liquid epoxy (not containing aromatic group)	Alicyclic solid epoxy (not containing aromatic group)
Hinata et al	Plastic substrate (e.g., polycarbonate)	
Suzuki et al	Bisphenol A (containing aromatic group)	Alicyclic epoxy resin (not containing aromatic group)
JP '527	Bisphenol A (containing aromatic group)	Cresol novolak or phenol novolak epoxy resin (containing aromatic group)

Applicants' epoxy resin substrate is formed from a liquid alicyclic epoxy resin and a solid alicyclic epoxy resin.

Hinata et al discloses a liquid crystal display element comprising a plastic substrate, as mentioned above. However, Hinata et al does not teach or suggest any material other than polycarbonate as the material of the substrate.

Suzuki et al discloses a mixture of an aromatic epoxy resin and an alicyclic epoxy resin as a material for an optical recording medium. Applicants' inventions do not basically contain an aromatic group, whereas the system according to Suzuki contains an aromatic group. Therefore, one skilled in the art would not have been motivated to substitute the mixture of Suzuki et al with an alicyclic liquid epoxy resin that has basically different chemical structure as intended in Suzuki et al.

Further, Suzuki et al does not disclose or suggest a solid epoxy resin.

JP '527 discloses a mixture of an aromatic epoxy resin and a solid epoxy resin (e.g., cresol novolak epoxy, phenol novolak epoxy). However, these resins differ from the resins used in the presently claimed invention for the reasons discussed below.

Epoxy resins are classified into classes depending on their ultimate uses. It is generally difficult to use a resin designed for a particular purpose for another purpose. Therefore, one skilled in the art would not be motivated to use resins designed for a particular purpose for a different purpose.

Accordingly, one skilled in the art would not have been motivated to substitute the mixture of an aromatic epoxy resin and a solid epoxy resin of JP '527 with an alicyclic liquid epoxy resin and an alicyclic solid epoxy resin as presently claimed.

In view of the above, the Examiner is respectfully requested to reconsider and withdraw the rejection.

In Paragraph No. 4 of the Office Action, Claims 2, 6 and 8 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hinata et al in view of Khan et al, JP '527, and Suziki et al, and further in view of "HDBU".

Applicants respectfully traverse the rejection for the same reasons as described above, because Claims 2, 6 and 8 are dependent from Claim 3 and HDBU does not rectify the deficiencies of Hinata et al, Khan et al, JP '527 and Suzuki et al.

HDBU discloses a substrate comprising a thermosetting epoxy resin. However, HDBU does not teach or suggest that such a substrate can be obtained from a mixture of an alicyclic

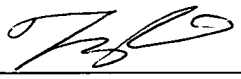
liquid epoxy resin and an alicyclic solid epoxy resin. Accordingly, one skilled in the art would not have been motivated to use such a mixture.

In view of the above, the Examiner is respectfully requested to reconsider and withdraw the rejection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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